

**The adult male of the myodocopid ostracode *Philomedes cubitum*
Kornicker, 1975, from the Strait of Magellan (Crustacea: Ostracoda:
Myodocopina)**

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Abstract.—The carapace and appendages of the adult male of *Philomedes cubitum* Kornicker, 1975, are described and illustrated from a specimen collected in the Strait of Magellan, which is the type locality. Observed sexual dimorphism is normal for the genus.

The Philomedidae contains two subfamilies, 11 genera, and about 75 species, and live in all oceans from intertidal to abyssal depths (Cohen 1982:183). Species of *Philomedes* are cosmopolitan, ranging from the Arctic to Antarctic, and have a known depth range of intertidal to 3480 m (Kornicker 1989:67). Most members of the genus, including *P. cubitum*, have juveniles that are not capable of swimming and are restricted to the bottom where they either crawl on the substrate or burrow into it. When they become adult, both sexes become capable of swimming and rise in the water to couple. After mating, the female either rubs or breaks off its swimming bristles and is again restricted to the bottom. Adult males die soon after coupling and as a result are less abundant than adult females.

The species *Philomedes cubitum* was described by Kornicker (1975:289) from 29 specimens (2 non-ovigerous adult females, and 27 juveniles) collected in 1969 at 2 stations at depths of 21.3–28 m in the Strait of Magellan. The adult male described herein was the only specimen of this species collected in the Strait by the Italian National Scientific Commission for Antarctica, Magellan Cruise, February–March 1991. Further collections were made in 1994, but only about 6 of more than 200 samples have been

examined so far without recovering more specimens of *P. cubitum*. The junior author was a member of the scientific unit working with planktonic Ostracoda. The specimen was noted in McKenzie et al. (1996); a comprehensive description follows.

In the figures, arabic numerals indicate limbs 1–7, as well as individual joints of each limb (the location of the numeral indicating whether a limb or joint is indicated). Roman numerals I–III indicate the endites. For definition of lettering system for appendage bristles see Skogsberg (1920:188) and Kornicker (1985:2). Letters used in identifying sclerites of the protopodite of the 2nd antenna are explained in Kornicker (1994:189).

Suborder Myodocopina Sars, 1866
Philomedidae Müller, 1906
Philomedinae Müller, 1906
Genus *Philomedes* Liljeborg, 1853

Philomedes Liljeborg, 1853:175.
Bradycinetus Sars:109 [preprint 1865].

Type species.—*Philomedes longicornis* Liljeborg, 1853:176 [= *Cypridina brenda* Baird, 1850].



Fig. 1. *Philomedes cubitum* USNM 194145, adult, male, length 1.56 mm: Complete carapace, ov. Abbreviations are: ant: antenna; am: central adductor muscle attachments; ap: anterior process; Bo: Bellonci organ; co: copulatory organ; cop: copepod; cx: coxale; end: endopodite; ex: exopodite; epip: epipodite; fu: furca; gird: girdle; hrt: heart; im: inner margin of infold; iv: inside view; le: lateral eye; lv: lateral view; me: medial eye; mls: medial longitudinal sclerite of protopodite of 2nd antenna; mnd: mandible; mv: medial view; mx: maxilla; nabs: not all bristles shown; ov: outside view; prot: protopodite; sens: sensory bristle of 5th joint of 1st antenna; ul: upper lip; Y-scl: Y-sclerite. Arrows on illustrations of the carapace indicate anterior.

Philomedes cubitum Kornicker, 1975

Figs. 1–7

Philomedes cubitum.—Kornicker, 1975:289, figs. 178, 179; McKenzie et al., 1996.

Holotype.—USNM 138656, adult female.

Type locality.—Hero Cruise 69-5, station 48, 53°41'40"S, 72°0'45"W, depth 21.3 m, Strait of Magellan, 20 Oct 1969.

Material.—USNM 194145, adult male.

Collection data.—Strait of Magellan. Italian National Scientific Commission for Antarctica, Magellan Cruise, MV *Cariboo*, Feb–Mar 1991; station 21 (plankton sampling began at 53°52.07'S, 70°30.00'W (1303 h) and ended at 52°52.70'S, 70°29.60'W (1331 h), 1 Mar 1991. Depth to bottom 46 m; sampling depth 20–42 m. The mouth area of the plankton net is 0.25 square meters, mesh size 250 micrometers.

Distribution.—Strait of Magellan: females and juveniles in substrate at depth of 21.3–

28 m; adult male in plankton at depth of 20–42 m.

Description of adult male.—Carapace elongate, oval, with prominent rostrum and broad incisur, and with small projecting caudal process not projecting posteriorly past posterior margin of valve, which extends laterally past tip of caudal process (Figs. 1, 3a–c, 4a–c); without small protuberance at ventral corner of rostrum present on female shell (Kornicker 1975:290). Ornamentation (Figs. 1, 3b, c): Carapace smooth, with relatively few long and short bristles scattered on valve surface; long bristles more numerous along edge of rostrum and posterior valve margin.

Infold: Infold broad along anterior, anteroventral, and posteroventral margin; rostral infold with 17 bristles (Fig. 4a); 1 small bristle just ventral to inner end of incisur (not shown); anterior part of ventral infold with 5 bristles; remaining infold of ventral margin

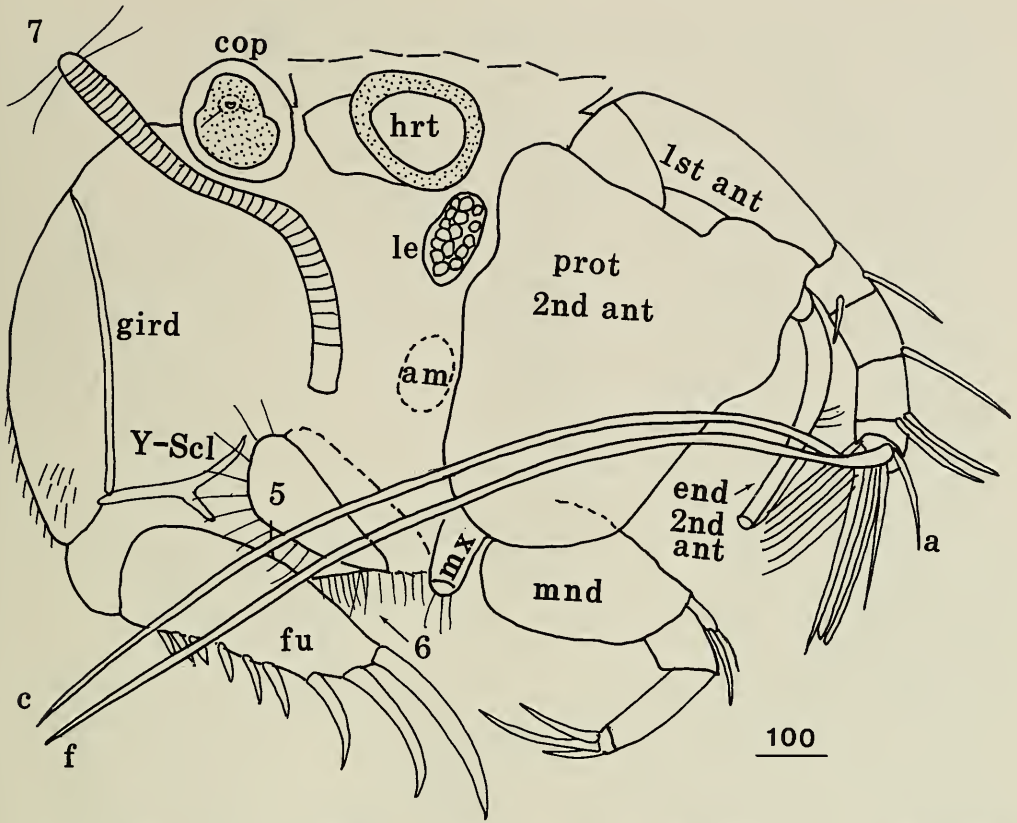


Fig. 2. *Philomedes cubitum* USNM 194145, adult male: Camera lucida drawing of body (nabs). Note parasitic copepod attached to body near 7th limb. Scale in microns. (For abbreviations, see Fig. 1.)

and posterior infold bare; list paralleling inner margin of posteroventral and posterior infold with about 17 bristles in groups of 1 to 3 bristles (not all shown in Fig. 4b, c). Shell edge forming high angle at posteroventral corner of each valve and resulting in small projecting caudal process (Fig. 4b, c); posterior end of process with 3 short bristles (Fig. 4b, c).

Selvage: Lamellar prolongation of selvage broadly striated and fringed in area of rostrum and incisur (Fig. 3c); prolongation divided at inner end of incisur; anteroventral infold with few long hairs at midwidth of lateral side. Ventral prolongation not striated, and with short marginal fringe; posterior prolongation broad and fringed but absent along caudal process.

Central adductor muscle attachments (Fig.

3a, d): Comprising about 16 oval and elongate attachments.

Carapace size: USNM 194145, length 1.56 mm, height 0.88 mm.

First antenna (Figs. 2, 5a): 1st joint with few medial spines. 2nd joint with few ventral and dorsal spines, and 3 bristles (1 ventral with long spines, 1 dorsal, 1 lateral). 3rd joint with 3 bristles (1 ventral, 2 dorsal). Fourth joint with 6 bristles (4 ventral, 2 dorsal). Sensory bristle of 5th joint with numerous long slender proximal filaments and 3 long subterminal filaments excluding stem (not all shown). Medial bristle of 6th joint near dorsal margin and with long spines near midlength. 7th joint: a-bristle short spinous; b-bristle with 3 proximal and 5 terminal filaments including stem; c-bristle very long with 12 marginal filaments. 8th joint: d- and

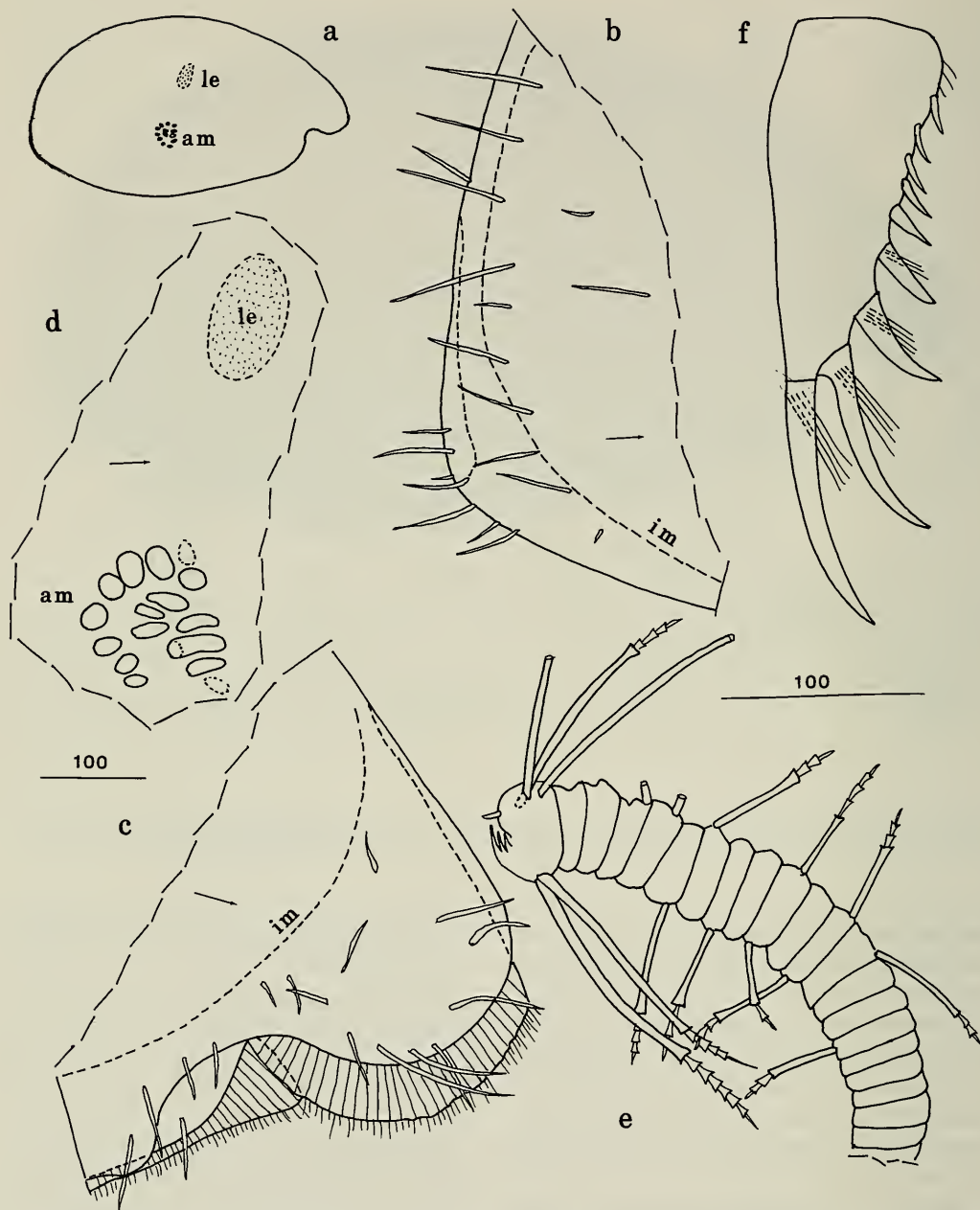


Fig. 3. *Philomedes cubitum* USNM 194145, adult male: a, Outline of complete carapace from right side, ov; b, Detail of posteroventral corner shown in a; c, Detail of rostrum and incisor in a; d, detail of lateral eye (stippled) and central adductor muscle attachments shown in a; e, 7th limb; f, left lamella of furca, lv. Scale in microns; same magnification: b, c, f; d, e. (For abbreviations, see Fig. 1.)

e-bristles about same length as b- and g-bristles, bare with blunt tips; f-bristle very long with 10 marginal filaments; g-bristle with 3 proximal and 4 terminal filaments including

stem. (Filaments of c- and f-bristles not shown.)

Second antenna (Figs. 2, 5c-e): Protopodite bare with e-sclerite. Endopodite 3-joint-

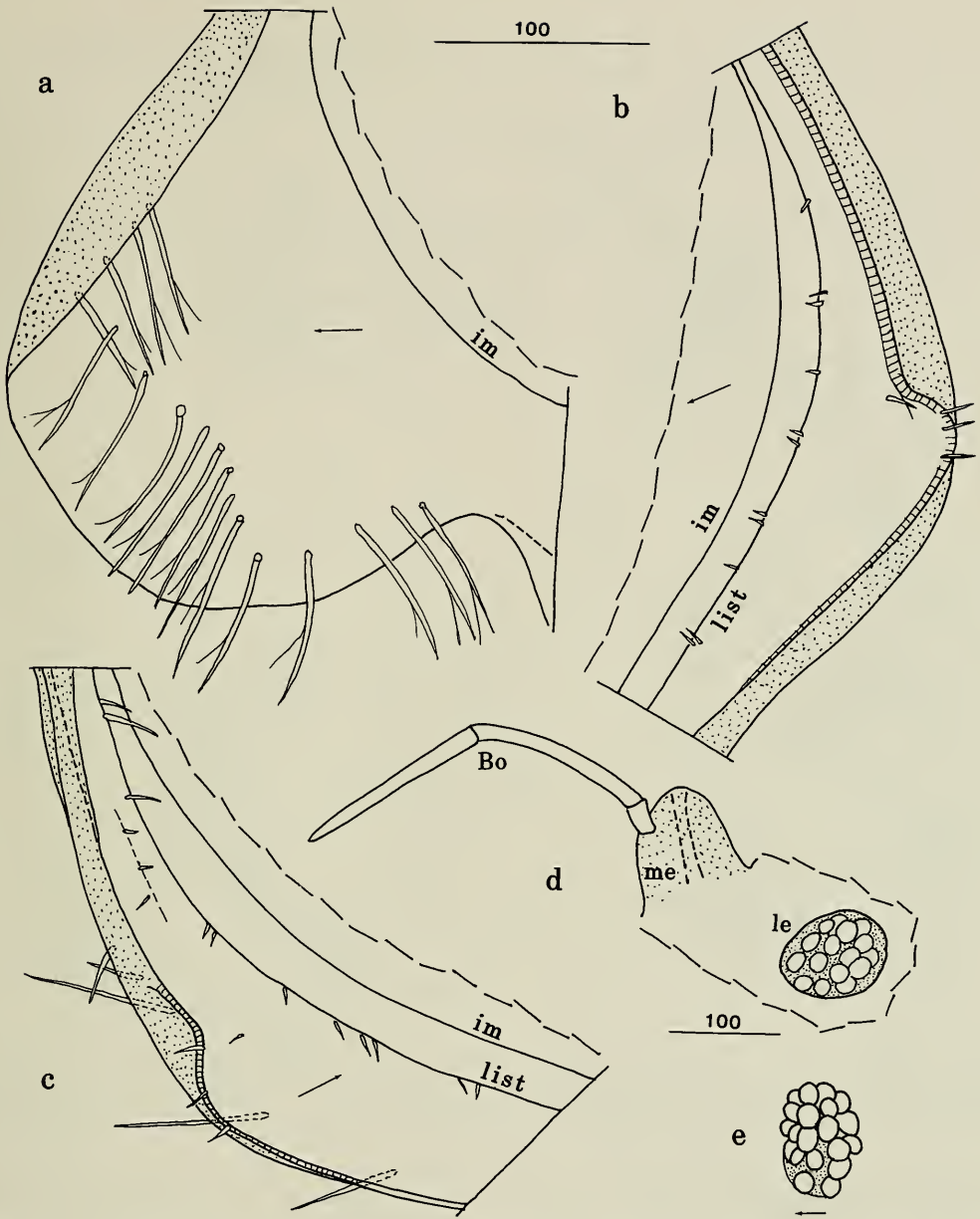


Fig. 4. *Philomedes cubitum* USNM 194145, adult male: a, rostrum right valve, iv; b, c, caudal processes right and left valve, respectively, iv; d, lateral eye, medial eye, and Bellonci organ, stippling indicates pigment; e, left lateral eye. Scale in microns; same magnification: a-c; d, e. (For abbreviations, see Fig. 1.)

ed: 1st joint with 6 bristles (5 proximal and 1 distal); 2nd joint elongate with 3 short bristles near midlength; 3rd joint reflexed on 2nd, with 1 long proximal and 2 short terminal bristles. Exopodite: 1st joint with small distomedial spine; 3rd joint longer

than 2nd joint; 2nd joint with bristle with row of stout ventral spines at midlength; bristles of joints 3-8 long with natatory hairs; 9th joint with 7 unbroken bristles; joints 3-8 with stout basal spines; joints 2-8 with terminal row of minute spines.

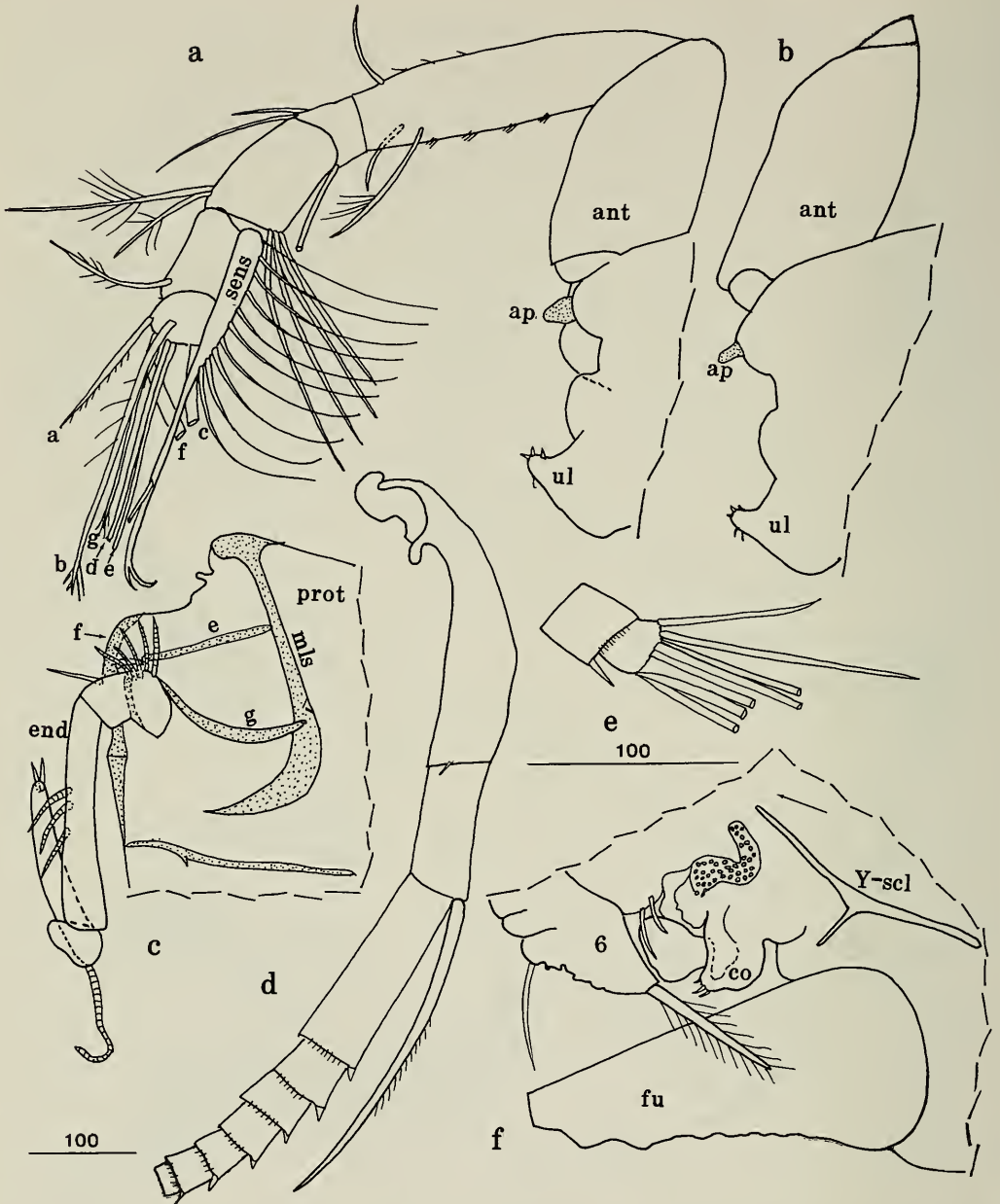


Fig. 5. *Philomedes cubitum* USNM 194145, adult male: a, profile of anterior of body from left side and right 1st antenna, mv; b, profile of anterior of body from left side and joint 1 of left 1st antenna, lv; c, part of protopodite (sclerites stippled) and endopodite right 2nd antenna, mv; d, exopodite left 2nd antenna, mv, nabs; e, joints 8 and 9 exopodite left 2nd antenna, lv; f, part of posterior of body from left side. Scale in microns; same magnification: a-d, f; e. (For abbreviations, see Fig. 1.)

Mandible (Figs. 2, 6a): Coxale endite absent. Basale: dorsal margin with 3 bristles (1 short bare near midlength, 2 terminal (1 long with long spines near midlength, 1 short

bare)); medial surface with rows of spines in dorsal half (not shown) and 5 bristles (4 proximal and 1 at about 1/4 length of joint) either bare or with short spines; ventral mar-

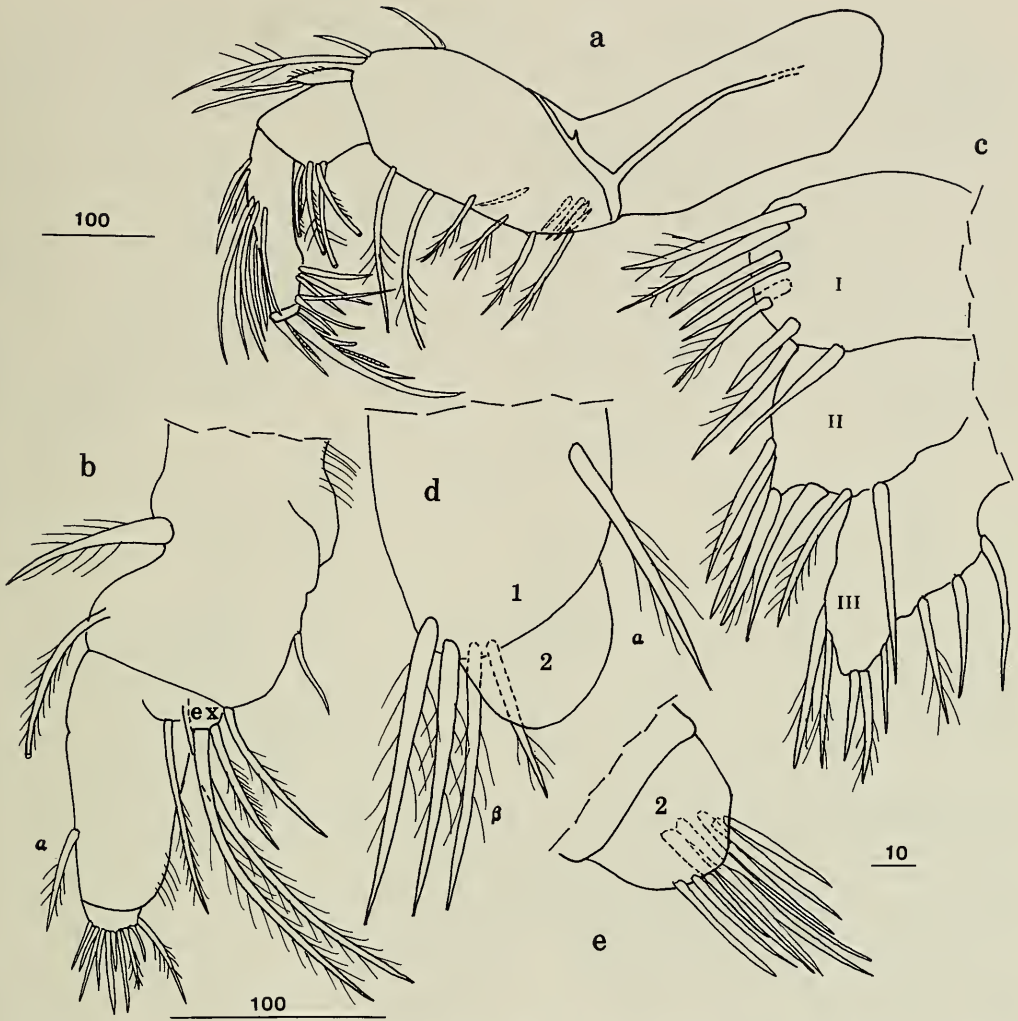


Fig. 6. *Philomedes cubitum* USNM 194145, adult male: a, left mandible, lv; b, right maxilla, mv, nabs; c, endites right maxilla, lv; d, alpha- and beta-bristles of 1st endopodial joint left maxilla, mv; e, bristles of 2nd endopodial joint left maxilla, mv. Scale in microns; same magnification: a; b; c-e. (For abbreviations, see Fig. 1.)

gin with 6 bristles (middle with base slightly lateral). Exopodite with hirsute tip reaching midlength of dorsal margin of 1st endopodial joint, with 2 bare subterminal bristles. 1st endopodial joint with 5 ventral bristles (2 longest with long spines, others with short spines) and short terminal dorsal spines. 2nd endopodial joint: ventral margin with 3 bristles in both subterminal and terminal groups; dorsal margin with 3 bristles in proximal group and 6 in distal group; medial surface with rows of spines. 3rd endopodial joint

with 3 stout claws with ventral teeth along middle part (teeth not shown), and 4 ringed bristles.

Maxilla (Figs. 2, 6b-e): Limb reduced. Endite I with 9 bristles, endite II with 6 bristles; endite III with 8 bristles. Coxale with stout hirsute dorsal bristle. Exopodite with 3 bristles with long hairs. Basale with 3 long bristles along distal margin. 1st endopodial joint with 1 alpha-bristle and 4 beta-bristles. 2nd endopodial joint with about 10 bristles.

Fifth limb (Figs. 2, 7a-c): Limb reduced.

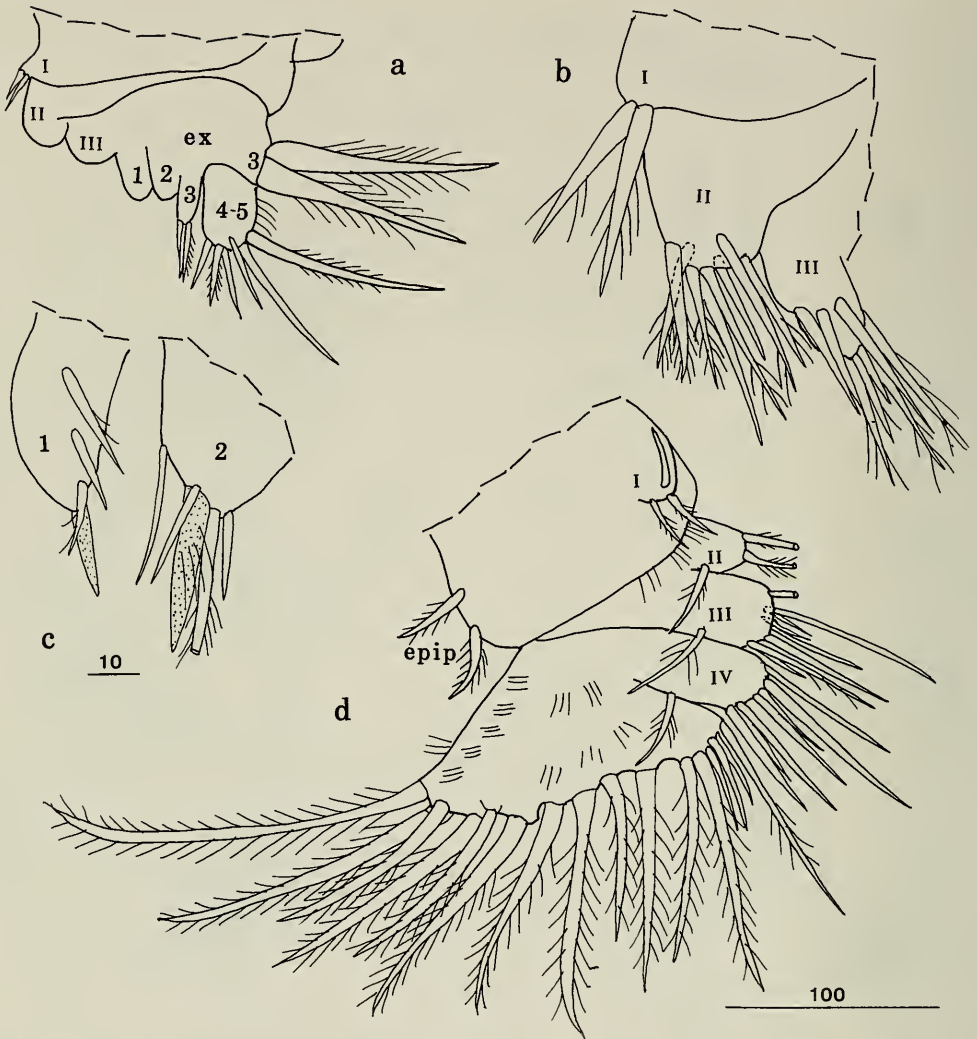


Fig. 7. *Philomedes cubitum* USNM 194145, adult male: a, 5th limb, nabs; b, endites of 5th limb shown in a; c, bristles of exopodial joints 1 and 2 of 5th limb shown in a; d, left 6th limb, mv. Scale in microns; same magnification: a, d; b, c. (For abbreviations, see Fig. 1.)

Endite I with 2 bristles; endites II and III each with 8 bristles. Exopodite: 1st and 2nd joints each with 1 broad bristle and several slender bristles; 3rd joint with 3 short bristles on inner lobe (nabs) and 2 stout hirsute bristles on outer lobe; 4th and 5th joints fused, with total of 6 slender bristles.

Sixth limb (Figs. 2, 5f, 7d): With 2 spinous epipodial bristles; endite I with 3 spinous bristles; endite II with 4 spinous bristles (1 medial, 3 terminal) (nabs); endite III

with 9 spinous bristles (1 medial, 8 terminal); endite IV with 8 spinous bristles (1 medial, 7 terminal); end joint with 16 spinous bristles and medial and lateral hairs.

Seventh limb (Figs. 2, 3e): Limb with 16 bristles, 5 in distal group (3 on peg side, 2 on comb side), 11 proximal (6 on peg side, 5 on comb side). Terminal comb with about 7 alate teeth; 1 long and 1 short peg (not shown) opposite comb. Only 1 limb examined, other fragmented.

Furca (Figs. 2, 3f, 5f): Each lamella with 9 claws decreasing in length and width along lamellae; anterior 5 claws stout; all claws with teeth along posterior edges; tips of claws pointed; hairs present at bases of claws and following last claw.

Bellonci organ (Fig. 4d): Elongate with 2 sutures, 1 proximal and 1 at midlength; tip broadly pointed.

Eyes (Figs. 2, 3a, d, 4d, e): Lateral eye well developed with 16–20 ommatidia and black pigment between them. Medial eye about same size as lateral eye, amber-colored, bare.

Upper lip (Fig. 5a, b): With anterior projection with small processes at tip; ventral surface with few anterior hairs.

Genitalia (Fig. 5f): Lobate with few bristles.

Anterior of body (Fig. 5a, b): With elongate anterior process.

Posterior of body (Fig. 2): Evenly rounded with hairs in ventral third.

Y-sclerite (Figs. 2, 5f): With ventral branch typical for genus.

Heart (Fig. 2): Well developed.

Gut content: With minute unrecognizable amber-colored particles.

Ectoza (Fig. 2): USNM 194145 with female choniostomatid on dorsal part of body.

Discussion.—Observed sexual dimorphism in this species is common to members of the genus. Choniostomatid copepods are generally sparser in males than females (Kornicker 1975:56), which suggests that they are probably present in many adult female *P. cubitum*, although they have not yet been reported.

The right-angle bend in the selvage at the posteroventral corner of each valve clearly shows that the male described above is conspecific with the previously described female in Kornicker (1975:289), which had been collected in the same area. The right-angle bend has not been reported in other species of *Philomedes*. Additional congeneric comparisons may be found in the original description of the species (Kornicker 1975:289).

Acknowledgements

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